

JEW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Vaartstra et al. Group Art Unit: 2812  
Serial No.: 10/828,686 Examiner: Unassigned  
Filed: April 21, 2004 Docket No.: 150.01300102  
Confirmation No.: 4467  
Title: SYSTEMS AND METHODS FOR FORMING STRONTIUM- AND/OR BARIUM-  
CONTAINING LAYERS

Commissioner for Patents

Mail Stop Amendment

P.O. Box 1450

Alexandria, VA 22313-1450

We are transmitting the following documents along with this Transmittal Sheet (which is submitted in triplicate):

An itemized return postcard.  
 A Petition for Extension of Time for \_\_\_ month(s) and a check in the amount of \$\_\_\_ for the required fee.  
 An Information Disclosure Statement (2 pgs); copies of 1 applications; 1449 forms (2 pgs); and copies of 12 documents cited on the 1449 forms.  
 A check in the amount of \$\_\_\_, for \_\_\_.  
 A certified copy of a \_\_\_ application, Serial No. \_\_\_, filed \_\_\_, the right of priority of which is claimed under 35 U.S.C. §119.  
 Other:  
 Amendment \_\_\_ No Additional fee is required. \_\_\_ The fee has been calculated as shown:

Fee Calculation for Claims Pending After Amendment					
	Pending Claims after Amendment (1)	Claims Paid for Earlier (2)	Number of Additional Claims (1-2)	Cost per Additional Claim	Additional Fees Required
Total Claims				x \$18 =	
Independent Claims				x \$86 =	
One or More New Multiple Dependent Claims Presented? If Yes, Add \$290 Here →					
Total Additional Claim Fees Required					

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 13-4895. Triplicate copies of this sheet are enclosed.

**CERTIFICATE UNDER 37 C.F.R. §1.8:** The undersigned hereby certifies that this Transmittal Letter and the paper(s), as described hereinabove, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Commissioner for Patents, Mail Stop Amendment, P.O. Box 1450, Alexandria, VA 22313-1450, on this 15 day of July, 2004.

MUETING, RAASCH & GEBHARDT, P.A.

Customer Number: 26813

By: Loren D. Albin  
Loren D. Albin  
Reg. No.: 37,763  
Direct Dial: 612-305-1225  
Facsimile: 612-305-1228

(LARGE ENTITY TRANSMITTAL UNDER RULE 1.8)



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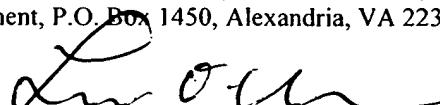
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PATENT  
Docket No. 150.01300102

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Vaartstra et al. ) Group Art Unit: 2812  
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Serial No.: 10/828,686       ) Examiner: Unassigned  
Confirmation No.: 4467       )  
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Filed: April 21, 2004       )  
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For:        SYSTEMS AND METHODS FOR FORMING STRONTIUM- AND/OR  
              BARIUM-CONTAINING LAYERS

**INFORMATION DISCLOSURE STATEMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with C.F.R. §§ 1.97 *et. seq.*, the materials enclosed herewith are brought to the attention of the Examiner as possibly being of interest in connection with the above-identified patent application. Per M.P.E.P. § 609, the information cited in the present Information Disclosure Statement shall not be construed to be an admission that the information is, or is considered to be, material to patentability. Consideration of each of the documents listed on the attached 1449 form(s) is respectfully requested. As this patent application was filed after June 30, 2003, copies of the U.S. patents and U.S. patent application publications listed on the attached 1449 form(s) have not been submitted. Pursuant to the provisions of M.P.E.P. §609, Applicants further request that a copy of the 1449 form(s), marked as being considered and initialed by the Examiner, be returned with the next Official Communication.

Applicants also wish to bring the Examiner's attention to the following pending U.S. Applications, as well as any documents, Office Actions that may include rejections of similar claims, and any provisional U.S. patent applications referenced in the pending U.S. applications or in their file wrappers. A copy of each of the below-listed pending U.S. Patent Applications is provided herewith.

**Information Disclosure Statement**

Page 2 of 2

Applicant(s): Vaartstra et al.

Serial No.: 10/828,686

Confirmation No.: 4467

Filed: April 21, 2004

For: SYSTEMS AND METHODS FOR FORMING STRONTIUM- AND/OR BARIUM-CONTAINING LAYERS**List of Pending Non-Published U.S. Patent Applications**

Applicant(s)	Application Number	Filing Date
Vaartstra et al.	10/425,514	04/29/03

This application is a continuation of U.S. Patent Application Serial No.

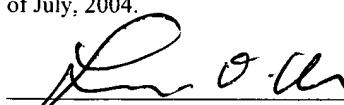
10/230,131, filed August 28, 2002, issued as U.S. Patent No. 6,730,164. In accordance with 37 C.F.R. §1.98(d), copies of documents previously cited by or submitted to the U.S. Patent and Trademark Office in connection with Applicants' prior application(s) listed above, are not included herewith.

It is believed that no fee is due, as this Information Disclosure Statement is filed prior to the receipt of any Action on the merits. However, in the event a fee is due, please charge any fee or credit any overpayment to Account No. 13-4895.

The Examiner is invited to contact Applicants' Representatives at the below-listed telephone number, if they can be of any assistance during prosecution of the present application.

**CERTIFICATE UNDER 37 C.F.R. 1.8:**

The undersigned hereby certifies that this paper is being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 12 day of July, 2004.

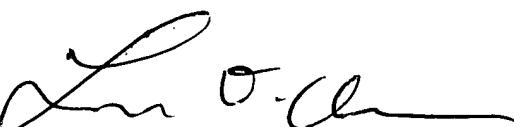


Loren D. Albin

Respectfully submitted for  
**Vaartstra et al.**

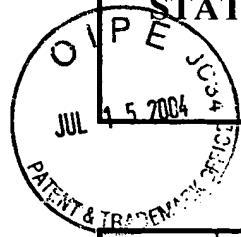
By  
Muetting, Raasch & Gebhardt, P.A.  
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Date

July 12, 2004By: 

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<b>INFORMATION DISCLOSURE STATEMENT</b>	Atty. Docket No.: 150.01300102	Serial No.: 10/828,686
	Applicants: Vaartstra et al.	Confirmation No.: 4467
	Application Filing Date: April 21, 2004	Group: 2812
	Information Disclosure Statement mailed: July 12, 2004	

**U.S. PATENT DOCUMENTS**

Examiner Initial	Copies Enclosed	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
		5,256,244	10/26/93	Ackerman			
		5,742,322	04/21/98	Cranton et al.			
		5,908,947	06/01/99	Vaartstra			
		6,143,081	11/07/00	Shinriki et al.			
		6,203,613	03/20/01	Gates et al.			
		6,271,094	08/07/01	Boyd et al.			
		6,335,049	01/01/02	Basceri			
		6,342,445	01/29/02	Marsh			
		6,387,764	05/14/02	Curtis et al.			
		6,730,164	05/04/04	Vaartstra et al.			

**FOREIGN PATENT DOCUMENTS**

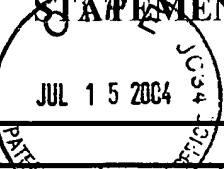
Examiner Initial	Copies Enclosed	Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	X	0 442 704 A2	12/02/91	EP				

**OTHER DOCUMENTS (Including Authors, Title, Date, Pertinent Papers, etc.)**

Examiner Initial	Copies Enclosed	Document Description
	X	"Atomic Layer Deposition (ALD 2002) Conference, August 19-21, 2002, at Hanyang University in Seoul, Korea," Conference Schedule [online] [retrieved 2003-07-08]. Retrieved from the Internet:<URL: <a href="http://www.av.org/conferences/ald/2002/program/aug19.html">http://www.av.org/conferences/ald/2002/program/aug19.html</a> >; 3 pgs.
	X	"Atomic Layer Deposition (ALD 2002) Conference, August 19-21, 2002, at Hanyang University in Seoul, Korea," Oral and slide Presentations [CD-ROM]. Available online from the Internet:<URL: <a href="https://www.av.org/conferences/ald/2002/cd_form.html">https://www.av.org/conferences/ald/2002/cd_form.html</a> >: 2 CDs.

EXAMINER	Date Considered

\*Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>INFORMATION DISCLOSURE STATEMENT</b>   JUL 15 2004	Atty. Docket No.: 150.01300102	Serial No.: 10/828,686
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Examiner Initial	Copies Enclosed	Document Description
	X	Gordon et al., "Vapor deposition of metal oxides and silicates: possible gate insulators for future microelectronics," <i>Chem. Mater.</i> , 2001, 13(8):2463-4.
		Hawley, <i>The Condensed Chemical Dictionary</i> , 10 <sup>th</sup> Edition, Van Nostrand Reinhold Co., New York, 1981; 225-226.
	X	Hendrix et al., "Composition control of $Jf_{1-x}Si_xO_2$ films deposited on Si by chemical-vapor deposition using amide precursors," <i>Appl. Phys. Lett.</i> , 2002, Apr. 1; 80(13):2362-4.
	X	Lee et al., "High-k gate dielectric applications using ALD Hf-based oxides," <i>Solid State Technology</i> , 2003, Jan.; 46(1): 45-6, 56.
	X	Liu et al., "Atomic Layer Deposition of Hafnium Oxide Thin Films from Tetrakis(dimethylamino)Hafnium (TDMAH) and Ozone," <i>Mat Res Soc Symp Proc</i> , 2003;765:97-102.
	X	Maruyama et al., "Silicon dioxide thin films prepared by chemical vapor deposition from tetrakis (dimethylamino) silane and ozone," <i>Appl. Phys. Lett.</i> , 1993, Aug. 2; 63(5):611-13.
	X	Ohshita et al., "HfO <sub>2</sub> growth by low-pressure chemical vapor deposition using the Hf(N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> ) <sub>4</sub> /O <sub>2</sub> gas system," <i>Journal of Crystal Growth</i> , 2001; 233:292-7.
	X	Ohshita et al., "Using tetrakis-diethylamido-hafnium for HfO <sub>2</sub> thin-film growth in low-pressure chemical vapor deposition," <i>Thin Solid Films</i> , 2002; 406:215-18.
	X	Ritala et al., "Atomic layer deposition of oxide thin films with metal alkoxides as oxygen sources," <i>Science</i> , 2000, Apr. 14; 288:319-21.
	X	Suzuki et al., "Atomic Layer Deposition of HfO <sub>2</sub> using Hf(N(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> ) <sub>4</sub> and O <sub>3</sub> ," Poster Presentation, <i>ALD 2002 Conference</i> , Hanyang University, Seoul, 2002, Aug. 19; 14 pages.
		Vaartstra et al., "Syntheses and Structures of a Series of Very Low Coordinate Barium Compounds: Ba[N(SiMe <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub> (THF) <sub>2</sub> , {Ba[N(SiMe <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub> (THF)} <sub>2</sub> , and {Ba[N(SiMe <sub>3</sub> ) <sub>2</sub> ] <sub>2</sub> } <sub>2</sub> , <i>Inorg. Chem.</i> , 1991; 30:121-5.
		Vehkämäki et al., "Growth of SrTiO <sub>3</sub> and BaTiO <sub>3</sub> Thin Films by Atomic Layer Deposition," <i>Electrochemical and Solid-State Letters</i> , 1999; 2(10):504-6.

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